

Watershed Evaluations

03050101-180

(Catawba River/Lake Wylie)

General Description

The Catawba River extends across North and South Carolina. Watershed 03050101-180 is located in York County and consists primarily of the ***Catawba River flowing through Lake Wylie*** and its tributaries. Within South Carolina, the watershed occupies 45,848 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Hiwassee-Goldston-Badin series. The erodibility of the soil (K) averages 0.20 and the slope of the terrain averages 10%, with a range of 2-45%. Land use/land cover in the watershed includes: 70.9% forested land, 16.1% agricultural land, 9.2% water, 2.7% urban land, 0.9% barren land, and 0.2% scrub/shrub land.

The Catawba River originates in North Carolina and flows through Lake Wylie into South Carolina in this watershed. Lake Wylie is used for both power generation and recreation. Tributaries draining into and forming arms of Lake Wylie in South Carolina include Catawba Creek, Mill Creek, Crowders Creek (South Fork Crowders Creek, Rocky Branch, Brown Creek, Beaverdam Creek, Camp Run), and Torrence Branch. There are a total of 37.2 stream miles and 4,500.0 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
CW-197	P/INT	FW	LAKE WYLIE ABOVE MILL CREEK ARM AT END OF S-46-557
CW-192	S/W	FW	SOUTH FORK CROWDERS CREEK AT S-46-79 4.5 MI NW OF CLOVER
CW-152	P/SPRP	FW	CROWDERS CREEK AT US 321 0.5 MI N OF NC STATE LINE
CW-023	P/SPRP	FW	CROWDERS CREEK AT S-46-564 NE OF CLOVER
CW-024	W/BIO	FW	CROWDERS CREEK AT S-46-1104
CW-105	S/W	FW	BROWN CK AT S-46-226, 0.3 MI W OF OLD N.MAIN ST. IN CLOVER
CW-696	BIO	FW	BEAVERDAM CREEK AT S-46-114
CW-153	S/W	FW	BEAVERDAM CREEK AT S-46-152 8 MI E OF CLOVER
CW-027	S/SPRP	FW	LAKE WYLIE, CROWDERS CK ARM AT SC 49 AND SC 274
CW-245	W	FW	L. WYLIE, CROWDERS CK ARM –1 ST POWERLINE UPSTR.OF MAIN POOL
CW-198	P/W	FW	LAKE WYLIE, OUTSIDE MOUTH OF CROWDERS CREEK ARM
CW-230	W/INT	FW	LAKE WYLIE AT DAM, UNDER POWERLINES

Lake Wylie –There are five SCDHEC monitoring sites along Lake Wylie. Aquatic life uses are not supported at **CW-197**, in the upper region of the lake, due to occurrences of copper in excess of the aquatic life acute criterion. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported at this site and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Aquatic life uses are fully supported at the furthest upstream site in the Crowders Creek arm of Lake Wylie (**CW-027**); however, there is a significant increasing trend in turbidity. Recreational uses are partially

supported at this site due to fecal coliform bacteria excursions, which are compounded by a significant increasing trend in fecal coliform bacteria concentration. Further downstream in the Crowders Creek arm (**CW-245**), aquatic life and recreational uses are fully supported. At the furthest downstream site of the Crowders Creek arm (**CW-198**), aquatic life and recreational uses are fully supported. There is a significant decreasing trend in pH. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter.

Aquatic life uses are fully supported at the dam site (**CW-230**); however, there is a significant decreasing trend in dissolved oxygen concentration. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported at this site. *Fish tissue samples from Lake Wylie indicate no advisories are needed at this time.*

South Fork Crowders Creek (CW-192) – Aquatic life uses are fully supported and a significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions.

Crowders Creek – There are three SCDHEC monitoring sites along Crowders Creek. Aquatic life uses are not supported at the upstream site (**CW-152**) due to occurrences of copper in excess of the aquatic life acute criterion. There are also significant increasing trends in five-day biochemical oxygen demand and total nitrogen concentration. There is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and a decreasing trend in turbidity suggest improving conditions for these parameters. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Further downstream (**CW-023**), aquatic life uses are fully supported; however, there are significant increasing trends in total phosphorus and total nitrogen concentrations. There is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration suggests improving conditions for this parameter. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. At the furthest downstream site (**CW-024**), aquatic life uses are partially supported based on macroinvertebrate community data. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

Brown Creek (CW-105) - Aquatic life uses are not supported due to turbidity excursions, compounded by a significant increasing trend in turbidity. There is a significant decreasing trend in pH. Recreational uses are not supported due to fecal coliform bacteria excursions.

Beaverdam Creek – There are two SCDHEC monitoring sites along Beaverdam Creek. Aquatic life use is fully supported at the upstream site (**CW-696**) based on macroinvertebrate community data. Aquatic life use is also fully supported at the downstream site (**CW-153**). There is a significant decreasing trend in pH. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however, a

significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Natural Swimming Areas

***FACILITY NAME
RECEIVING STREAM***

***PERMIT #
STATUS***

EBENEZAR PARK
LAKE WYLIE

46-N17
ACTIVE

NPDES Program

Active NPDES Facilities

***RECEIVING STREAM
FACILITY NAME
PERMITTED FLOW @ PIPE (MGD)***

***NPDES#
TYPE
COMMENT***

LAKE WYLIE
TEGA CAY #2 WWTP
PIPE #: 001 FLOW: 0.320

SC0026743
MINOR DOMESTIC

LAKE WYLIE
TEGA CAY #3 & #4 WWTP
PIPE #: 001 FLOW: 0.290
PIPE #: 002 FLOW: 1.00

SC0026751
MINOR DOMESTIC

BEAVERDAM CREEK
BEAVER CREEK MHP
PIPE #: 001 FLOW: 0.015

SC0032662
MINOR DOMESTIC

BEAVERDAM CREEK
PHARR YARNS/CLOVER DIV.
PIPE #: 001, 002, 003 FLOW: M/R

SC0028321
MINOR INDUSTRIAL

BEAVERDAM CREEK TRIBUTARY
BOWLING GREEN SPINNING CO.
PIPE #: 001 FLOW: 0.0025

SCG250066
MINOR INDUSTRIAL

MILL CREEK
LAKE WYLIE MHP
PIPE #: 001 FLOW: 0.09

SC0037605
MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

***LANDFILL NAME
FACILITY TYPE***

***PERMIT #
STATUS***

MCCALL DEER CREEK DR. LANDFILL
LAND DEBRIS

462672-1701

TEGA CAY 126, INC.
CONSTRUCTION

462436-1201 (CWP-033)
ACTIVE

Mining Activities

MINING COMPANY
MINE NAME

PERMIT #
MINERAL

MCCALL GRADING COMPANY, INC.
 MCCALL MINE

0926-91
 GRAVEL

ML FORD & SONS
 FORD BORROW PIT

1259-91
 SAND

Water Quantity

WATER USER
WATERBODY

REGULATED CAPACITY (MGD)
PUMPING CAPACITY (MGD)

CITY OF ROCK HILL
 LAKE WYLIE

20.0
 34.5

Growth Potential

There is a high potential for growth in this watershed, which contains the Towns of Lake Wylie and Tega Cay and portions of the Towns of Clover and India Hook. Residential development along the frontage of Lake Wylie continues to increase, with densest areas located around Tega Cay, River Hills, and the lakeshore north of Rock Hill. Residential development away from the lake is increasing but remains scattered, except in the Town of Clover. Commercial development continues to occur in the Lake Wylie Community along S.C. Hwy. 49. Another major land use factor is the Catawba Nuclear Station on the west side of the lake. Transportation projects, which will have an impact on future growth, include the widened Buster Boyd Bridge and S.C. Hwy. 49, both of which provide improved access into the Charlotte urban area and encourage further residential and commercial growth along the western shore of the lake.

Watershed Restoration and Protection***Total Maximum Daily Loads (TMDLs)***

TMDL was developed by SCDHEC and approved by EPA for **Beaverdam Creek** water quality monitoring site CW-153 to determine the maximum amount of fecal coliform bacteria it can receive from nonpoint sources and still meet water quality standards. The primary source of fecal coliform to the stream was determined to be runoff from grazed pastureland in the watershed. The second largest source was runoff from built-up land. The TMDL states that a 77% reduction in fecal coliform loading is necessary for the stream to meet the recreational use standard.

A TMDL was also developed by SCDHEC and approved by EPA for **Brown Creek** (a tributary of Beaverdam Creek) water quality monitoring site CW-105 to determine the maximum amount of fecal coliform bacteria it can receive from nonpoint sources and still meet water quality standards. The primary sources of fecal coliform to the stream were determined to be failing septic systems, possible direct discharges, and runoff from built-up areas. The TMDL states that a 98.4% reduction in fecal coliform loading from these sources is necessary for the stream to meet the recreational use standard. For more detailed information on TMDLs, please visit the SCDHEC's Bureau of Water homepage at

<http://www.scdhec.gov/water> and click on “Watersheds and TMDLs” and then “TMDL Program”.

A TMDL was developed by NCDENR and approved by EPA for *Crowders Creek* water quality in North Carolina and South Carolina and the Department concurs. Monitoring sites CW-023, CW-024, and CW-192 are included in the TMDL to determine the maximum amount of fecal coliform bacteria it can receive from nonpoint sources and still meet water quality standards. The TMDL states that a 78% reduction in fecal coliform loading is necessary for the stream to meet the recreational use standard.

Special Projects

TMDL Implementation for Fecal Coliform Bacteria in Allison Creek, Calabash Branch, Beaverdam Creek, and Brown Creek

The targeted areas in Allison Creek, Calabash Branch, *Beaverdam Creek*, and *Brown Creek* have been documented by SCDHEC as violating the water quality standard for fecal coliform. A Total Maximum Daily Load (TMDL) has since been developed and approved for these areas. The objective of this project is to reduce fecal coliform loading in Allison Creek at CW-171 by 67%, in Calabash Branch at CW-134 by 74%, in Beaverdam Creek at CW-153 by 77%, and in Brown Creek at CW-105 by 98.4% so that these watersheds meet the water quality standards for fecal coliform bacteria. There are several tools available for implementing these nonpoint source TMDLs, including nonpoint source outreach educational activities and materials. Section 319 grant funding through SCDHEC may be available to aid in implementing best management practices (BMP) within the areas of concern outside of areas deemed as Municipal Separate Storm Systems (MS4s) by the National Pollutant Discharge Elimination System (NPDES) Phase II. The Project will characterize possible sites of fecal coliform loading by using local knowledge, illicit discharge sampling, and spatial data analysis, while evaluating existing BMPs within the watershed. SCDHEC will continue to monitor water quality in these streams to evaluate the effectiveness of these measures.

Catawba Wateree FERC Re-licensing

The Federal Energy Regulatory Commission (FERC) is the agency that licenses, inspects, and oversees environmental matters related to most hydroelectric (hydro) projects. FERC licenses, which regulate the design and operation of those projects, are issued for a term of 30 to 50 years. The relicensing process typically begins 5 years before the current license expiration date and involves the applicant providing information to state and federal resource and regulatory agencies, as well as other interested parties. During traditional licensing process, environmental issues such as water quality, minimum flow releases from dams and endangered species are addressed by states through 401 certifications required prior to new licenses being issued. In the Catawba watershed, Duke Power operates 13 hydro facilities and 11 reservoirs on the Catawba River in North and South Carolina. Seven of these facilities and 5 reservoirs are located in South Carolina, including **Lake Wylie**. All these facilities are regulated through a single license, which expires in 2008. Duke Power has initiated a “hybrid” relicensing process, which includes a collaborative process involving stakeholder negotiations, in addition to the traditional process. The Department is actively participating in the collaborative process as well as the traditional process, and Duke will apply for §401 Certification in 2006. More information about Catawba Wateree FERC relicensing can be found on the Duke Power website at: <http://www.catawbahydrolicensing.com/>.

"No Discharge" Designation for Lake Wylie

In May 2000, Lake Wylie was designated a *No Discharge* lake for marine toilets due to its importance from both an economical and recreational standpoint, which includes providing a reliable drinking water source for the City of Rock Hill. Federal and state law prohibit the discharge of untreated sewage into the waters of the United States, but treated sewage from marine toilets previously had been permitted, provided it has undergone some treatment and disinfection. Because microorganisms can continue to thrive after rudimentary treatment by on-board marine toilets, discharges may be completely banned from such waterbodies to protect the public's health, safety, and welfare. Federal law allows states to completely ban discharges if it can be demonstrated that adequate and accessible pumpout facilities are available. SCDHEC determined this to be the case at Lake Wylie with two marinas designated for treatment and disposal. The law banning discharges applies to large vessels with on-board toilets that previously were allowed to discharge treated wastes into the lake.

Sustainable Environment for Quality of Life

Sustainable Environment for Quality of Life (SEQL) is a USEPA program, which addresses regional environmental planning through the Centralina Council of Governments and the Catawba Regional Council of Governments. SEQL is intended to assist local governments in the 15-county Charlotte/Gastonia/Rock Hill region to work together to promote economic growth while protecting the environment. Multiple air and water quality issues are analyzed simultaneously, while addressing transportation, water, land use, energy use, population growth and economic development. The Department has supported the program by providing air and water quality information. More information about SEQL is available at the following website: <http://centralina.org/seql/background.htm>